

0.55082	0.96962	0.43458	-0.04384	-0.06530	50%
-0.04337	0.12602	0.80686	0.09977	-0.04166	70%
-0.12182	0.01227	-0.0684	1.24176	-0.35056	90%
0.07203	-0.01567	-0.0607	-0.18901	1.40297	100%

Volume of ethanol in the blend, %: 10.0

E10 Blend: 10G

Blendstock % blend

TK41 7.9%

TK2 0.0%

TK3 0.0%

TK4 7.9%

TK5 10.1%

TK6 5.1%

TK24 10.0%

TK7 0.0%

TK11 0.0%

TK8 0.0%

TK10 0.0%

TK12 0.0%

TK14 0.0%

TK15 0.0%

TK16 0.0%

TK17 0.0%

TK18 3.9%

TK19 5.5%

TK20 0.0%

TK21 5.8%

TK23 0.0%

TK25 9.0%

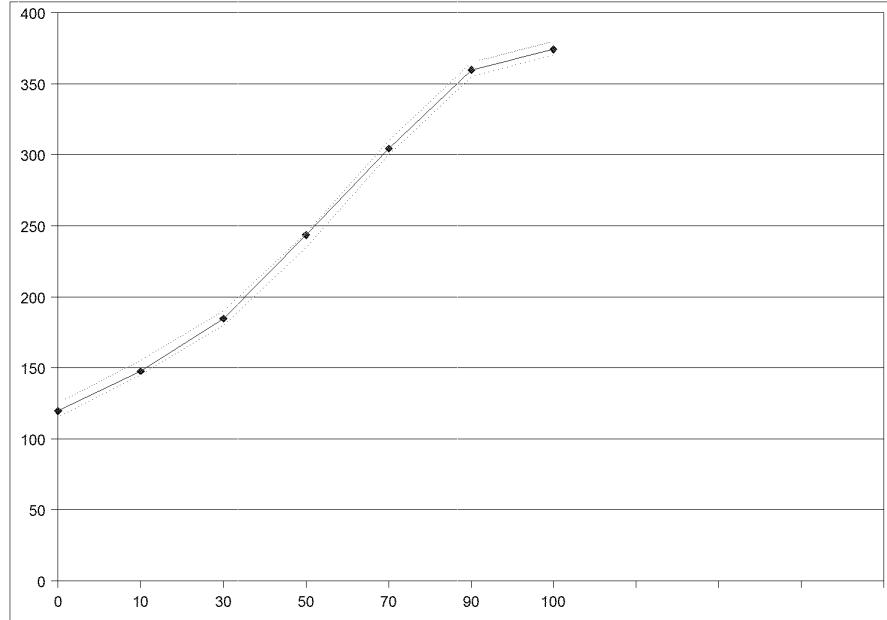
TK28 21.4%

TK36 0.0%

TK37 7.1%

Sum 100.0%

Check 100.0%



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PROPERTY	UNITS	METHOD	Base Fuel RESULTS	E10 T10 and T50 Estimator	
				E10 RESULTS	T10 and T50 Inputs
Specific Gravity	-	D4052	0.7657	0.7685	BT10 145.7
Delta, °F	IBP		119.6	-	BT50 232.1
T10	-14.13327	T10	147.6	133.5	BT90 300.8
T30			184.7	-	X 10.0
T50	9.79304	T50	243.6	233.8	
			304.4	-	
			359.7	359.7	DT10 13.2
			374.2	374.2	DT50 -11.8
			(R + M)/2	-	
			Calc.	90.4	94.6

E10 Blend Composition	
Blendstock	% blend
TK41	7.1%
TK2	0.0%
TK3	0.0%
TK4	7.1%
TK5	9.0%
TK6	4.6%
TK24	8.9%
TK7	0.0%
TK11	10.5%
TK8	0.0%
TK10	0.0%
TK12	0.0%
TK14	0.0%
TK15	0.0%
TK16	0.0%
TK17	0.0%
TK18	3.9%
TK19	5.5%
TK20	0.0%
TK21	5.8%
TK23	0.0%
TK25	9.0%
TK28	21.4%
TK36	0.0%
TK37	7.1%
Sum	100.0%

Blend RVP estimates based on SAE Paper 2007-01-4006

$$K_{ethanol} = 46.321 \cdot (V_{ethanol})^{0.9422}$$

$$K_{gasoline} = -7 \cdot 10^{-7} \cdot (V_{ethanol})^3 + 0.0002 \cdot (V_{ethanol})^2 + 0.0024 \cdot V_{ethanol} + 1$$

$$RVP_{blend} = K_{gasoline} \cdot (V_{gasoline}/100) \cdot RVP_{gasoline} + K_{ethanol} \cdot (V_{ethanol}/100) \cdot 2.4$$

Where:

$K_{ethanol}$ - apparent activity coefficient of ethanol

$K_{gasoline}$ - apparent activity coefficient of gasoline

$V_{ethanol}$ - volume percent of ethanol in blend

$V_{gasoline}$ - volume percent of gasoline in blend

$RVP_{ethanol}$ - RVP of ethanol, psi (2.4 psi at 100 °F)

$RVP_{gasoline}$ - RVP of gasoline, psi

RVP_{blend} - RVP of blend, psi

For blends other than E10, the volume percent of ethanol in gasoline must be changed in cell Z18